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**Amide derivative and external medicament comprising same.**

(30)

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**FR-A-2 264 522  
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**Description****1. Field of the Invention**

5 This invention relates to an amide derivative and an external medicament comprising such derivative and, more particularly, to external medicament capable of enhancing the moisture retainability of keratin layers thereby improving chapping of the skin.

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**2. Description of the Prior Art**

It has hitherto been known that water content in keratin layers is an important factor for moistening and softening skin. It is considered that the water content is retained by water-soluble ingredients contained in the keratin layers, i.e., free amino acids, organic acids, urea or inorganic ions. These substances are incorporated solely or in combination into pharmaceutical external medicament or cosmetic composition in order to improve or prevent chapping of the skin.

Aside from the foregoing, many moisture retaining substances having high affinity with water have been developed and used for the same purpose.

20 However, these moisture retaining substances, when applied to the skin, remain on the keratin layers of the skin, serve to supply water thereto and act only temporarily thereby providing no fundamental improvement for the water retainability of the keratin layers or essential prevention or cure of chappings in the skin.

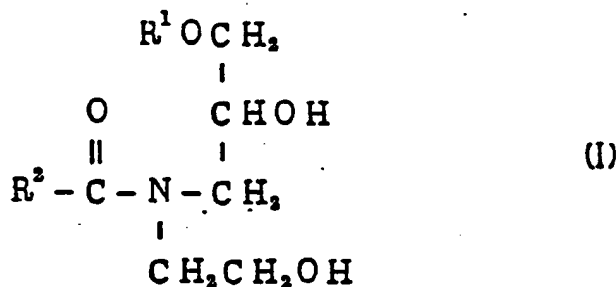
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**Summary of the Invention**

In view of the above situation, the present inventors have made an earnest study for overcoming the foregoing problems and have accomplished this invention based on the finding that the amide derivative synthesized for the first time by the present inventors and represented by the following general formula (I):

35

40



45 wherein

R<sup>1</sup> represents a linear or branched, saturated or unsaturated hydrocarbon group having 10 to 26 carbon atoms, and

50 R<sup>2</sup> represents a linear or branched, saturated or unsaturated hydrocarbon group having 9 to 25 carbon atoms, exhibits an effect of fundamentally improving the water retainability of keratin layers and that this effect can further be improved by the combined use of a surface active agent with the amide derivative.

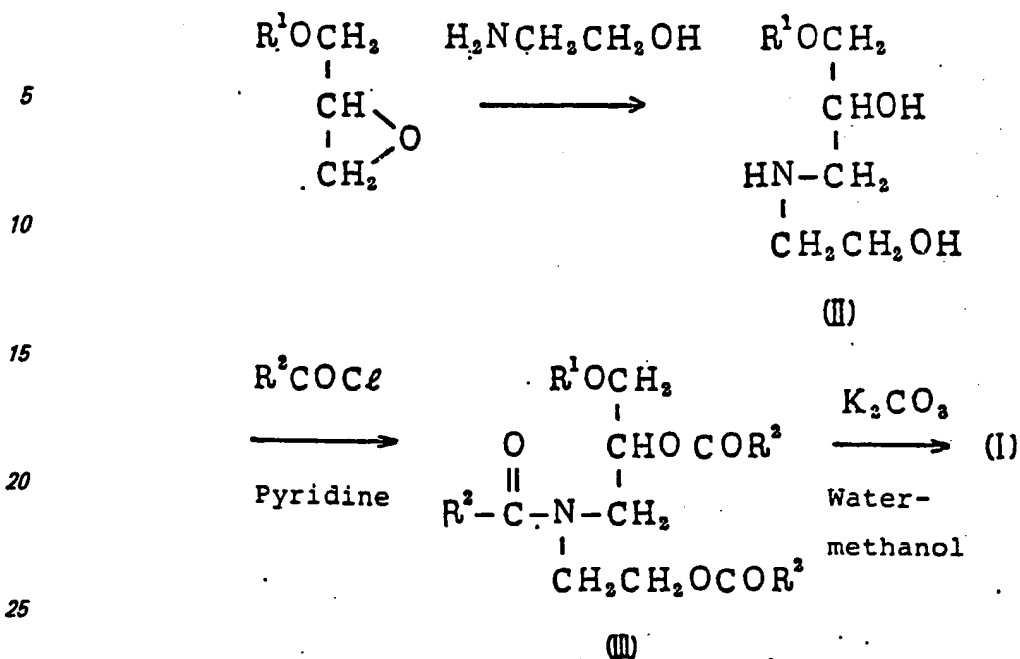
That is, this invention provides an amide derivative represented by the formula (I) as described above and an external medicament comprising the amide derivative (I). This invention further provides an external medicament comprising the amide derivative (I) and a surface active agent.

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**Detailed Description of the Invention and Preferred Embodiments**

60 The amide derivative represented by the formula (I) to be used in this invention can be prepared according to known methods (disclosed, for instance, in "Polish Journal of Chemistry" 52, (1978) 1059 and ibid. 52, (1978) 1283; Japanese Patent Application Laid-Open Nos. 117421/1979, 144308/1979 and 147937/1979). That is, it can be prepared by acylating a compound (II) obtained from glycidyl ether and ethanol amine and then selectively hydrolyzing the ester groups therein according to the reaction scheme shown below:

65



wherein

$\text{R}^1$  and  $\text{R}^2$  have the same meanings as described above.

The amide derivative represented by the formula (I) can also be prepared by reacting the compound (II) obtained above directly with a fatty acid methyl ester without isolation.

The amount of the amide derivative (I) to be incorporated into the external medicament according to this invention has no particular restriction but it is used in an amount from 0.001 to 50 % by weight (hereinafter simply represented by %), preferably, from 0.1 to 20 % in the case of usual emulsion type external medicament and, from 1 to 50 % and, preferably, from 5 to 25 % in the case of oily external medicament based on liquid hydrocarbon such as squalene.

As the surface active agent, any of nonionic surface active agents, anionic surface active agent and amphoteric surface active agents may be used. Of these, nonionic surface active agents are preferred.

Nonionic surface active agent can include, for instance, polyoxyethylene alkyl ether, polyoxyethylene alkylphenyl ether, polyoxyethylene fatty acid ester, sorbitan fatty acid ester, polyoxyethylene sorbitan fatty acid ester, fatty acid monoglyceride and glyceryl ether. Among them, preferred are those glyceryl ethers represented by the following general formula (IV):



wherein

R represents an alkyl group of 8 to 24 carbon atoms and, particularly preferred are those compounds of the formula (IV) in which R is represented by the following formula (V):



wherein

p represents an integer from 4 to 10,

q represents an integer from 5 to 11,  $p + q = 11$  to 17 and having a distribution peak at  $p = 7$  and  $q = 8$ .

The incorporation amount of the surface active agent is from 0.01 to 20 %, preferably from 0.1 to 5 % based on the total composition.

The external medicaments of this invention are generally classified into a pharmaceutical external medicament and a cosmetic composition, according to their use.

As a pharmaceutical external medicament, for example, various kinds of ointments containing medicinal components can be listed. The ointment may be based on either of oily basic agents or oil-in-water or water-in-oil emulsion type basic agents. The oily basic agents can include with no particular restriction, for example, vegetable oils, animal oils, synthetic oils, fatty acids, natural or synthetic glycerides. As the medicinal components, anodyne, antiphlogistic agents, itch-killers, sterilizing and disinfecting agents, astringent, skin softening agents, hormon preparations and the like can be incorporated as required with no particular restrictions.

In the application use as a cosmetic composition, those generally employed as cosmetic ingredients such as oily components, moisture retaining agents, UV-ray absorbers, alcohols, chelating agents, pH adjusting agents, antiseptics, thickeners, colorants and perfumes can optionally be combined and blended in addition to the essential ingredients.

The cosmetic compositions may be prepared in various forms of skin cosmetics such as water-in-oil or oil-in-water type emulsion cosmetics, creams, milky lotions, liquid face lotions, oily face lotions, lip sticks, foundations, skin cleaning agents, hair tonics, hair conditioners, hair nourishing agents or hair growers.

Although not completely known for the details of the operation mechanisms of the amide derivative represented by the general formula (I) in the external medicament according to this invention, it is presumed that the derivative re-constitutes lipid membranes between keratin cells, so that the keratin layers exhibit water retainability.

Since the external medicament according to this invention contains the amide derivative (I) having above property, it can provide excellent improving and preventing effects for chapping of the skin.

This invention will now be explained referring to examples.

#### Example 1

Synthesis of N-(2-hydroxy-3-hexadecyloxypropyl)-N-2-hydroxyethylhexadecanamide (Ia) [ $R^1 = C_{16}H_{33}$ ,  $R^2 = C_{15}H_{31}$  in the formula (I)]

(i) Synthesis of N-(2-hydroxy-3-hexadecyloxypropyl) ethanolamine (IIa):

In a 200 ml four-necked flask equipped with a stirrer, a dropping funnel, a thermometer and a reflux condenser, 61.1 g (1.0 mol) of ethanolamine was stirred under heating at 60 - 70°C, and 24.3 g (0.082 mol) of hexadecyl glycidyl ether was added dropwise for 45 minutes. After the addition was completed, the reaction mixture was stirred for additional 2 hours under the same conditions, followed by evaporation of unreacted ethanolamine under a reduced pressure (79 - 81°C/20 Torr). The residue was purified over silica gel flash column chromatography to give 18.4 g of the above-captioned compound (IIa) (yield 63 %).

$^1H$ -NMR  $\delta$ CDCl<sub>3</sub>:

0.85 (3H, t), 1.23 (28H, br. s), 2.6 - 2.8 (4H, m), 3.1 - 3.9 (10H, m)

(ii) Synthesis of N-(2-hexadecanoyloxy-3-hexadecyloxypropyl)-N-2-hexadecanoyloxyethylhexadecanamide (IIIa):

15.2 g (0.042 mol) of the compound (IIa) obtained in (i) were dissolved in 200 ml of chloroform and 10.0 g (0.126 mol) of pyridine were added. Under water cooling, 34.6 g (0.126 mol) of hexadecanoyl chloride were added dropwise for 30 minutes and, after the addition was completed, the reaction mixture was stirred at room temperature for 2 hours. The reaction mixture was washed with water to remove pyridine hydrochloride and the solvent was distilled off to give 45.1 g of a crude product of the compound (IIIa).

$^1H$ -NMR  $\delta$ CDCl<sub>3</sub>:

0.86 (12H, t), 1.25 (106H, br. s), 2.2 - 2.4 (6H, m), 3.3 - 3.6 (8H, m), 4.0 - 4.3 (2H, m), 5.1 - 5.2 (1H, m)

(iii) Synthesis of the title compound (Ia):

5.8 g (0.084 mol) of potassium carbonate was added to the suspension of 45.1 g of the crude (IIIa) in 450 g of solvent mixture as water/methanol = 1/1 and reaction mixture was refluxed for 3 hours. After reaction was completed, chloroform-soluble matters were extracted from the reaction mixture and purified over silica gel flash column chromatography to give 15.0 g of the title compound (Ia) as colorless powder (yield 60 %, based on (IIa)). The compound (Ia) exhibited satisfactory physical and analytical data.

mp.: 74.9 - 75.3°C

IR  $\nu$ KBr (Cm<sup>-1</sup>):

3320br, 2924, 2852, 1616, 1468, 1442, 1378, 1112, 1062, 722

$^1H$ -NMR  $\delta$ CDCl<sub>3</sub>:

0.86 (6H, t), 1.0 - 1.6 (54H, m), 2.2 - 2.5 (2H, m), 3.1 - 4.1 (13H, m)

Elementary analysis:

Calculated (%): C 74.31, H 12.64, N 2.34  
 Found (%): C 74.12, H 12.70, N 2.23

5

**Example 2**

Synthesis of N-(2-hydroxy-3-hexadecyloxypropyl)-N-2-hydroxyethylhexadecanamide (Ia) [ $R^1 = C_{16}H_{33}$ ,  $R^2 = C_{15}H_{31}$  in the formula (I)]:

10

In a 5 liter four-necked flask equipped with a stirrer, a dropping funnel, a thermometer, a reflux condenser and a gas inlet tube, 1637 g (26.8 mol) of ethanolamine and 327 g (7.11 mol) of ethanol were stirred at 80°C in  $N_2$  atmosphere. To the solution, 400 g (1.34 mol) of hexadecyl glycidyl ether were added dropwise for three hours. After the addition was completed, the reaction mixture was stirred under the same conditions for additional 30 minutes and then ethanol and unreacted ethanolamine were removed in vacuum (79 - 81°C/20 Torr). 3.76 g (0.067 mol) of potassium hydroxide were added to the residue and, was stirred at 80°C/20 Torr. To the solution, 362.3 g (1.34 mol) of methylhexadecanoate were added dropwise for 3 hours. After the addition was completed, the reaction mixture was stirred for additional one hour under the same conditions to give 801 g of pale yellow crude product. The product was recrystallized once from hexane and following twice from ethanol to give 649 g of the title compound (Ia) as colorless powder (yield 81 %).

20

mp.: 74 - 76°C

IR (cm<sup>-1</sup>): 3320 (br), 2924, 2852, 1616, 1468, 1112, 1062

<sup>1</sup>H-NMR: 0.86 (6H, t), 1.0 - 1.6 (54H, m), 2.2 - 2.5 (2H, m), 3.2 - 4.1 (13H, m)

Elementary analysis:

25

Calculated (%): C 74.31, H 12.64, N 2.34

Found (%): C 74.12, H 12.70, N 2.23

30 **Example 3**

Synthesis of N-(2-hydroxy-3-decyloxypropyl)-N-2-hydroxyethyldecanamide (Ib) [ $R^1 = C_{10}H_{21}$ ,  $R^2 = C_9H_{19}$  in the formula (I)]:

35

The title compound as colorless powder (Ib) was obtained in the same procedure as in Example 2 by using decyl glycidyl ether and methyl decanoate (yield 71 %).

mp.: 46 - 49°C

IR (cm<sup>-1</sup>): 3316 (br.), 2920, 2860, 1620, 1470, 1107, 1085

<sup>1</sup>H-NMR: 0.86 (6H, t), 1.0 - 1.6 (30H, m), 2.2 - 2.5 (2H, m), 3.1 - 4.1 (13H, m)

40

Elementary analysis:

Calculated (%): C 69.88, H 11.96, N 3.26

Found (%): C 70.25, H 11.95, N 3.16

45

**Example 4**

Synthesis of N-(2-hydroxy-3-decyloxypropyl)-N-2-hydroxyethyldocosanamide (Ic) [ $R^1 = C_{10}H_{21}$ ,  $R^2 = C_{21}H_{43}$  in the formula (I)]:

50

The title compound as colorless powder (Ic) was obtained in the same procedure as in Example 2 by using decyl glycidyl ether and methyl docosanoate (yield 80 %).

mp.: 65 - 68°C

IR (cm<sup>-1</sup>): 3310 (br.), 2920, 2854, 1617

55

<sup>1</sup>H-NMR: 0.87 (6H, t), 1.1 - 1.7 (54H, m), 2.1 - 2.6 (2H, m), 3.2 - 4.2 (13H, m)

Elementary analysis:

Calculated (%): C 74.31, H 12.64, N 2.34

Found (%): C 74.33, H 12.65, N 2.35

60

**Example 5**

Synthesis of N-(2-hydroxy-3-octadecyloxypropyl)-N-2-hydroxyethyldecanamide (Id) [ $R^1 = C_{18}H_{37}$ ,  $R^2 = C_9H_{19}$  in the formula (I)]:

65

The title compound as colorless powder (Id) was obtained in the same procedure as in Example 2 by using octadecyl glycidyl ether and methyl decanoate (yield 78 %).

mp.: 59 - 61°C

IR (cm<sup>-1</sup>): 3298 (br.), 2926, 2854, 1617, 1470, 1104, 1062

<sup>1</sup>H-NMR: 0.86 (6H, t), 1.0 - 1.7 (46H, m), 2.2 - 2.5 (2H, m), 3.2 - 4.1 (13H, m)

Elementary analysis:

Calculated (%): C 73.14, H 12.46, N 2.58

Found (%): C 73.31, H 12.49, N 2.54

#### Example 6

Synthesis of N-(2-hydroxy-3-tetradecyloxypropyl)-N-2-hydroxyethyloleinamide (Ie) [R<sup>1</sup> = C<sub>14</sub>H<sub>29</sub>, R<sup>2</sup> = cis-9-C<sub>17</sub>H<sub>33</sub> in the formula (I)]:

The title compound as colorless paste (Ie) was obtained in the same procedure as in Example 2 by using tetradecyl glycidyl ether and methyl oleate and purifying over silica gel chromatography (yield 85 %).

mp.: 35 - 40°C

IR (cm<sup>-1</sup>): 3400 (br.), 2926, 2854, 1626, 1470, 1110, 1080

<sup>1</sup>H-NMR: 0.87 (6H, t), 1.1 - 1.7 (46H, m), 1.8 - 2.2 (4H, m), 2.2 - 2.5 (2H, m), 3.3 - 4.2 (13H, m), 5.2 - 5.5 (2H, m)

Elementary analysis:

Calculated (%): C 74.57, H 12.35, N 2.35

Found (%): C 74.69, H 12.34, N 2.32

#### Example 7

Synthesis of N-(2-hydroxy-3-methylbranched octadecyloxypropyl)-N-2-hydroxyethyl-methylbranched octadecanamide (If) [in the formula (I),

R<sup>1</sup> = CH<sub>3</sub>(CH<sub>2</sub>)<sub>m</sub>CH(CH<sub>2</sub>)<sub>n</sub>CH<sub>2</sub>- (m + n = 14),

CH<sub>3</sub>

R<sup>2</sup> = CH<sub>3</sub>(CH<sub>2</sub>)<sub>m</sub>CH(CH<sub>2</sub>)<sub>n</sub>- (m + n = 14)]:

CH<sub>3</sub>

The title compound as colorless liquid (If) was obtained in the same procedure as in Example 6 by using methyl-branched octadecyl glycidyl ether and methyl-branched methyl octadecanoate (yield 84 %).

mp.: 17 - 30°C

IR (cm<sup>-1</sup>): 3400 (br.), 2926, 2854, 1626, 1470, 1122

<sup>1</sup>H-NMR: 0.86 (12H, t), 1.0 - 1.7 (56H, m), 2.2 - 2.5 (2H, m), 3.2 - 4.2 (13H, m)

Elementary analysis:

Calculated C 75.28, H 12.79, N 2.14

Found C 75.22, H 12.71, N 2.19

#### Example 8

By using a mixture of vaseline/compounds (Ia - f) = 3/1 (weight ratio) (product 1 according to this invention) and vaseline, skin conductance and chapping in the skin were evaluated by the following methods. The results are shown in Table 1.

(Test Method)

Different external medicaments were applied for two weeks on right and left cheeks of each of 10 female test panelers of 20 - 50 years old suffering from skin chapping in their cheeks in winter season. The test was conducted for the following items on the next day after completing the application for the two weeks.

(1) Skin conductance

After washing panelers' faces with warm water at 37°C and keeping them quiet for 20 minutes in a room at a

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temperature of 20°C and a humidity of 40 %, the water content in the keratin layers was measured by a skin conductance meter (manufactured by IBS Co.). Lower conductance value means the severer skin chapping and the value less than 5 indicates remarkably severe skin chapping. On the other hand, if the conductance value is higher than 20, no substantial skin chapping was recognized.

## (2) Score for skin chapping

Skin chapping was observed by naked eyes and judged by the following criterion. The score was indicated by an average value  $\pm$  standard deviation.

Score	Judgement for chapping
0	no chapping recognized
1	slight chapping recognized
2	chapping recognized
3	somewhat severe chapping recognized
4	severe chapping recognized

Table 1

		Skin Conductance	Chapping Score
	Inventive Product 1 (Ia)	$20 \pm 4.0$	$1.0 \pm 0.2$
	" (Ib)	$13 \pm 1.2$	$1.3 \pm 0.6$
	" (Ic)	$19 \pm 3.5$	$1.1 \pm 0.3$
	" (Id)	$18 \pm 2.4$	$1.2 \pm 0.3$
	" (Ie)	$26 \pm 4.0$	$0.8 \pm 0.2$
	" (If)	$23 \pm 3.6$	$0.9 \pm 0.2$
	Vaseline	$6 \pm 0.9$	$2.8 \pm 0.7$

## Example 9

By using the compounds (Ia - f) of this invention obtained in Example 1, the external medicaments (emulsion cosmetic compositions) having the formations shown in Table 2 were prepared and their effect for improving the skin chapping was evaluated by the same method as in Example 8. The results are shown in Table 3.

Table 2

(wt.-%)

Composition	Emulsion Cosmetic Composition			Emulsion Cosmetic Composition		
	Inventive Product			Comparative Product		
	2	3	4	2	3	4
Glyceryl ether [R in the formula (IV) represented by the formula (V)]	2.0	-	-	2.0	-	-
Alginine monocetyl phosphate	-	2.0	-	-	2.0	-
Polyoxyethylene (20) sorbitan stearate	-	-	1.0	-	-	1.0
Sorbitan monostearate	-	-	1.0	-	-	1.0
2-octyldodecylmyristate	10.0	10.0	10.0	10.0	10.0	10.0
Vaseline	3.0	3.0	3.0	3.0	3.0	3.0
Squalane	5.0	5.0	5.0	5.0	5.0	5.0
Acetic acid tocophenol	0.5	0.5	0.5	0.5	0.5	0.5
Compound of the Invention (Ia - f)	1.0	1.0	1.0	-	-	-
Water	balance	→	→	→	→	→

Table 3

		Score for Skin Chapping		
		2	3	4
Inventive Product	(Ia)	$0.2 \pm 0.2$	$0.4 \pm 0.3$	$0.8 \pm 0.3$
"	(Ib)	$0.5 \pm 0.3$	$0.7 \pm 0.5$	$1.2 \pm 0.5$

"	(lc)	0.2 ± 0.2	0.5 ± 0.3	0.8 ± 0.4
"	(ld)	0.3 ± 0.2	0.5 ± 0.4	0.8 ± 0.4
"	(le)	0.1 ± 0.1	0.3 ± 0.2	0.5 ± 0.2
"	(lf)	0.1 ± 0.1	0.3 ± 0.2	0.7 ± 0.3
5	Comparative Product	2.1 ± 0.5	2.5 ± 0.5	2.6 ± 0.8

Note) Ten subjects

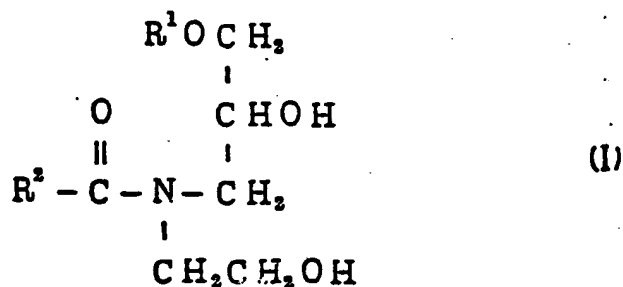
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Claims for the Contracting States: CH, DE, FR, GB, IT, LI, NL

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1. An amide derivative represented by the general formula (I):

20

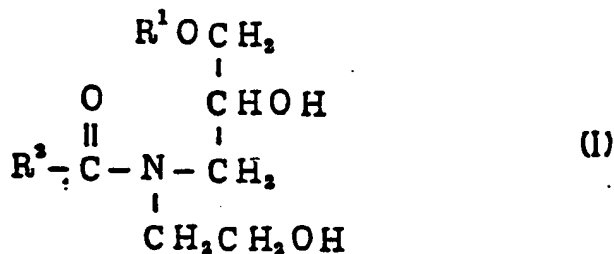


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30 wherein R<sup>1</sup> represents a linear or branched, saturated or unsaturated hydrocarbon group having 10 to 26 carbon atoms and R<sup>2</sup> represents a linear or branched, saturated or unsaturated hydrocarbon group having 9 to 25 carbon atoms.

2. An external medicament comprising an amide derivative represented by the general formula (I):

35

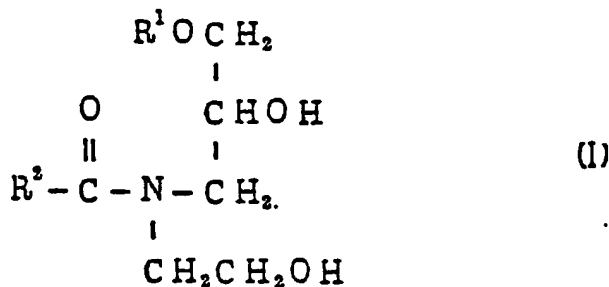


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45 wherein R<sup>1</sup> represents a linear or branched, saturated or unsaturated hydrocarbon group having 10 to 26 carbon atoms and R<sup>2</sup> represents a linear or branched, saturated or unsaturated hydrocarbon group having 9 to 25 carbon atoms.

3. An external medicament comprising an amide derivative represented by the general formula (I):

50



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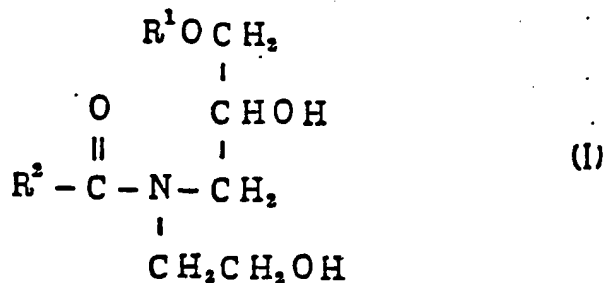
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65 wherein R<sup>1</sup> represents a linear or branched, saturated or unsaturated hydrocarbon group having 10 to 26 carbon atoms and R represents a linear or branched, saturated or unsaturated hydrocarbon group having 9 to 25 carbon atoms, and a surface active agent.



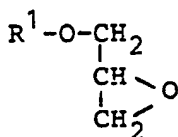
Claims for the Contracting States: AT, ES

1. A process for preparing an amide derivative represented by the general formula (I):

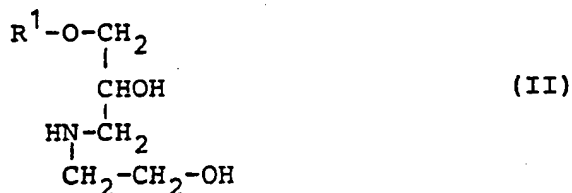


wherein R<sup>1</sup> represents a linear or branched, saturated or unsaturated hydrocarbon group having 10 to 26 carbon atoms and R<sup>2</sup> represents a linear or branched, saturated or unsaturated hydrocarbon group having 9 to 25 carbon atoms,

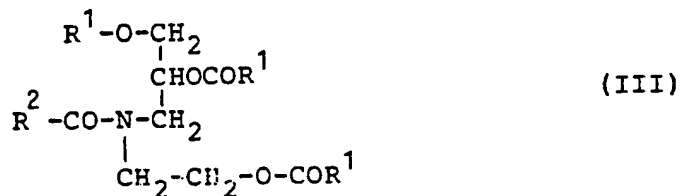
characterized by reacting a glycidyl ether of the formula:



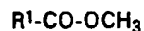
with ethanol amine to produce the intermediate compound of formula II:



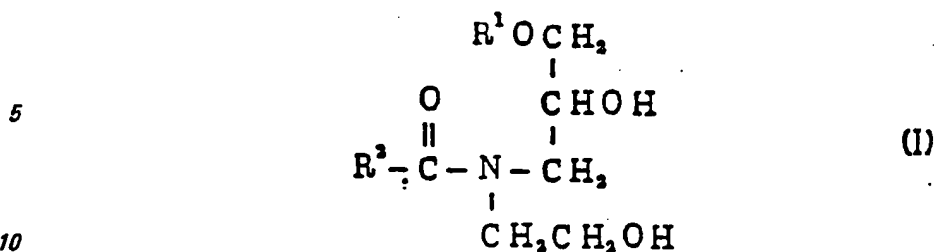
which is subsequently either acylated with R<sup>2</sup>-COCl to produce an intermediate of formula III:



with subsequent selective hydrolysis of the ester groups, or reacted with a methyl ester of the formula:

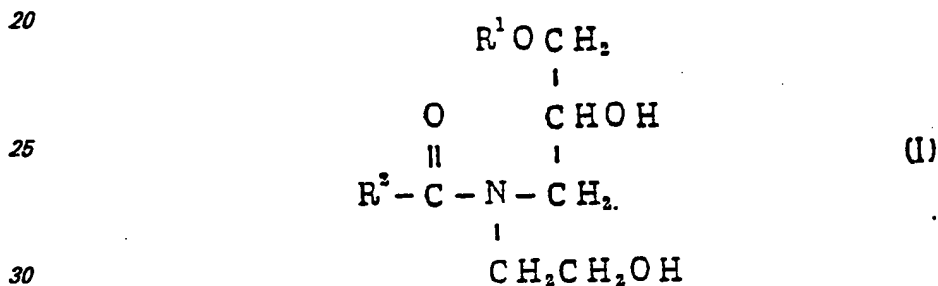


2. Use of an amide derivative represented by the general formula (I):



wherein R<sup>1</sup> represents a linear or branched, saturated or unsaturated hydrocarbon group having 10 to 26 carbon atoms and R<sup>2</sup> represents a linear or branched, saturated or unsaturated hydrocarbon group having 9 to 25 carbon atoms for preparing an external medicament.

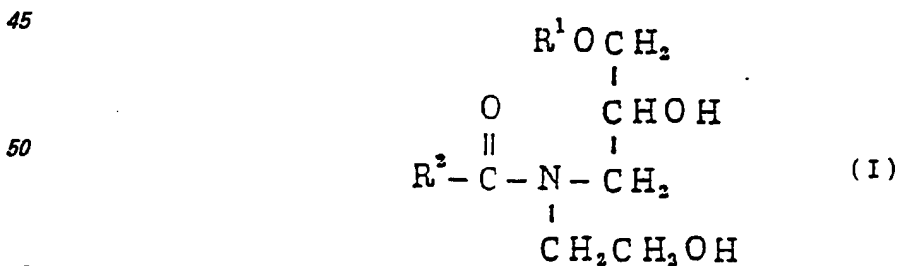
3. Use of an amide derivative represented by the general formula (I):



wherein R<sup>1</sup> represents a linear or branched, saturated or unsaturated hydrocarbon group having 10 to 26 carbon atoms and R<sup>2</sup> represents a linear or branched, saturated or unsaturated hydrocarbon group having 9 to 25 carbon atoms, and a surface active agent for preparing an external medicament.

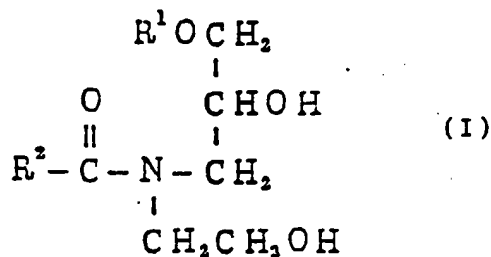
Patentansprüche für die Vertragsstaaten: CH, DE, FR, GB, IT, LI, NL

1. Amidderivat der allgemeinen Formel (I):



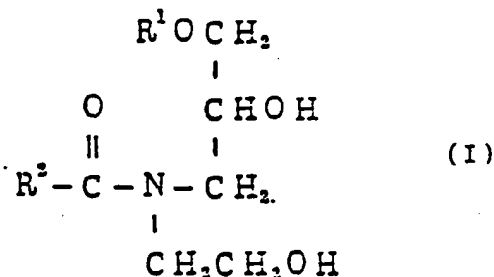
wobei R<sup>1</sup> für eine lineare oder verzweigte, gesättigte oder ungesättigte Kohlenwasserstoffgruppe mit 10 bis 26 Kohlenstoffatomen steht und R<sup>2</sup> für eine lineare oder verzweigte, gesättigte oder ungesättigte Kohlenwasserstoffgruppe mit 9 bis 25 Kohlenstoffatomen steht.

2. Äußerlich anzuwendendes Medikament, umfassend ein Amidderivat der allgemeinen Formel (I):



wobei R<sup>1</sup> für eine lineare oder verzweigte, gesättigte oder ungesättigte Kohlenwasserstoffgruppe mit 10 bis 26 Kohlenstoffatomen steht und R<sup>2</sup> für eine lineare oder verzweigte, gesättigte oder ungesättigte Kohlenwasserstoffgruppe mit 9 bis 25 Kohlenstoffatomen steht.

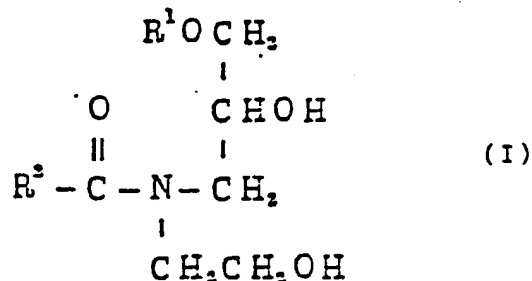
3. Äußerlich anzuwendendes Medikament, umfassend ein Amidderivat der allgemeinen Formel (I):



wobei R<sup>1</sup> für eine lineare oder verzweigte, gesättigte oder ungesättigte Kohlenwasserstoffgruppe mit 10 bis 26 Kohlenstoffatomen steht und R<sup>2</sup> für eine lineare oder verzweigte, gesättigte oder ungesättigte Kohlenwasserstoffgruppe mit 9 bis 25 Kohlenstoffatomen steht, und ein oberflächenaktives Mittel.

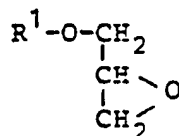
### Patentansprüche für die Vertragsstaaten: AT, ES

1. Verfahren zur Herstellung eines Amidderivats der allgemeinen Formel (I):

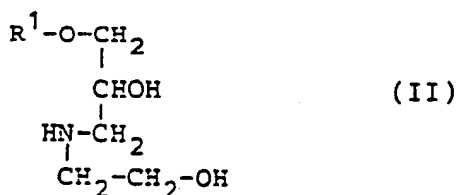


wobei R<sup>1</sup> für eine lineare oder verzweigte, gesättigte oder ungesättigte Kohlenwasserstoffgruppe mit 10 bis 26 Kohlenstoffatomen steht und R<sup>2</sup> für eine lineare oder verzweigte, gesättigte oder ungesättigte Kohlenwasserstoffgruppe mit 9 bis 25 Kohlenstoffatomen steht,

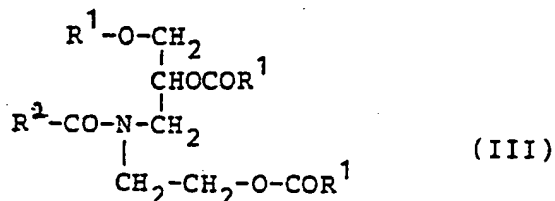
dadurch gekennzeichnet, daß man einen Glycidyläther der Formel:



mit Ethanolamin umgesetzt, um das Zwischenprodukt der Formel I:



zu erhalten, welches anschließend entweder mit  $R^2-COCl$  acyliert wird, um ein Zwischenprodukt der Formel III zu erzeugen,

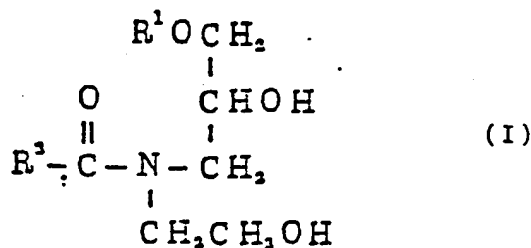


mit anschließender selektiver Hydrolyse der Estergruppen, oder mit einem Methylester der Formel:



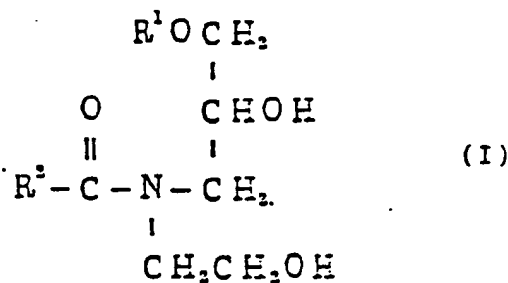
umgesetzt wird.

2. Verwendung eines Amidderivats der allgemeinen Formel I:



wobei  $R^1$  für eine lineare oder verzweigte, gesättigte oder ungesättigte Kohlenwasserstoffgruppe mit 10 bis 26 Kohlenstoffatomen steht und  $R^2$  für eine lineare oder verzweigte, gesättigte oder ungesättigte Kohlenwasserstoffgruppe mit 9 bis 25 Kohlenstoffatomen steht, zur Herstellung eines äußerlich anzuwendenden Medikaments.

3. Verwendung eines Amidderivats der allgemeinen Formel I:

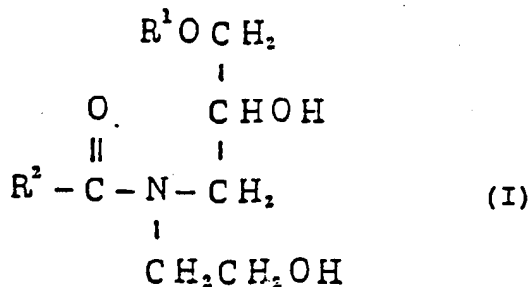


wobei  $R^1$  für eine lineare oder verzweigte, gesättigte oder ungesättigte Kohlenwasserstoffgruppe mit 10 bis 26 Kohlenstoffatomen steht und  $R^2$  für eine lineare oder verzweigte, gesättigte oder ungesättigte Kohlenwasserstoffgruppe mit 9 bis 25 Kohlenstoffatomen steht, und eines oberflächenaktiven Mittels zur Herstellung einer äußerlich anzuwendenden Medikaments.

# EP 0 227 994 B1

Revendications pour les Etats Contractants: CH, DE, FR, GB, IT, LI, NL

1. Dérivé d'amide représenté par la formule générale (I):

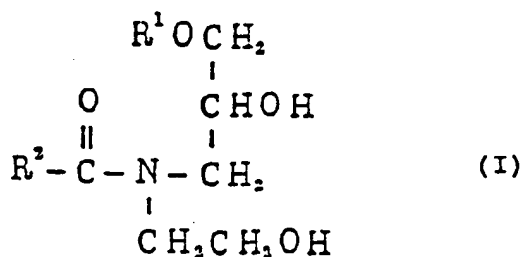


dans laquelle:

- R<sup>1</sup> représente un groupe hydrocarboné saturé ou insaturé, linéaire ou ramifié, ayant de 10 à 26 atomes de carbone; et

- R<sup>2</sup> représente un groupe hydrocarboné saturé ou insaturé, linéaire ou ramifié, ayant de 9 à 25 atomes de carbone.

2. Médicament à usage externe comprenant un dérivé d'amide représenté par la formule générale (I):

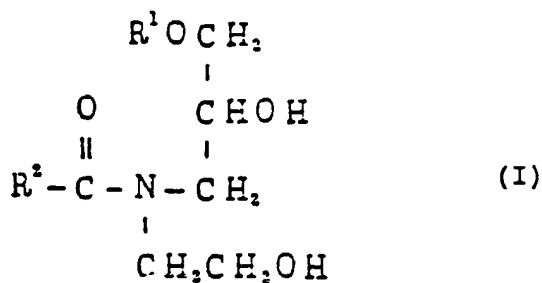


dans laquelle:

- R<sup>1</sup> représente un groupe hydrocarboné saturé ou insaturé, linéaire ou ramifié, ayant de 10 à 26 atomes de carbone; et

- R<sup>2</sup> représente un groupe hydrocarboné saturé ou insaturé, linéaire ou ramifié, ayant de 9 à 25 atomes de carbone.

3. Médicament à usage externe comprenant un dérivé d'amide représenté par la formule générale (I):



dans laquelle:

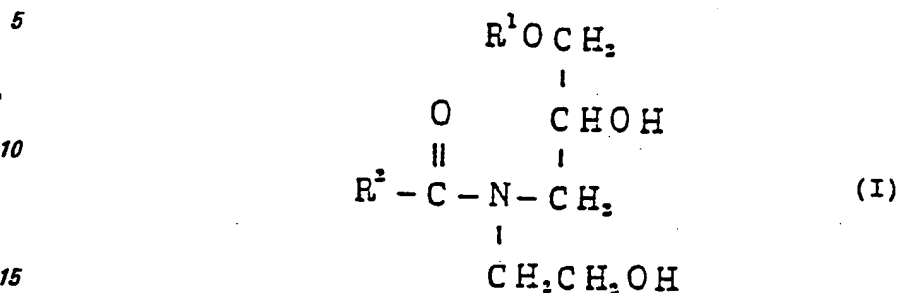
- R<sup>1</sup> représente un groupe hydrocarboné saturé ou insaturé, linéaire ou ramifié, ayant de 10 à 26 atomes de carbone; et

- R<sup>2</sup> représente un groupe hydrocarboné saturé ou insaturé, linéaire ou ramifié, ayant de 9 à 25 atomes de carbone,

et un agent tensio-actif.

## Revendications pour les Etats Contractants: AT, ES

1. Procédé de fabrication d'un dérivé d'amide représenté par la formule générale (I):



dans laquelle:

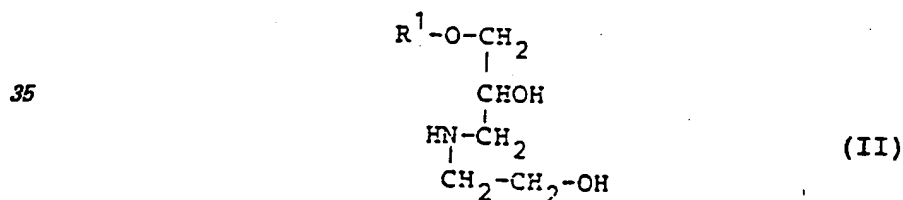
- R<sup>1</sup> représente un groupe hydrocarboné saturé ou insaturé, linéaire ou ramifié, ayant de 10 à 26 atomes de carbone; et

- R<sup>2</sup> représente un groupe hydrocarboné saturé ou insaturé, linéaire ou ramifié, ayant de 9 à 25 atomes de carbone,

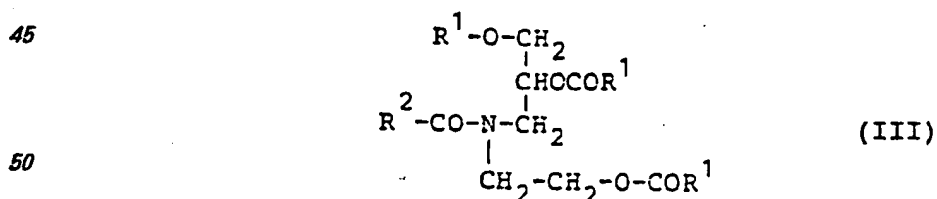
caractérisé par le fait qu'on fait réagir un éther glycidylique de formule:



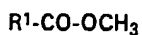
avec l'éthanol amine pour former le composé intermédiaire de formule (II):



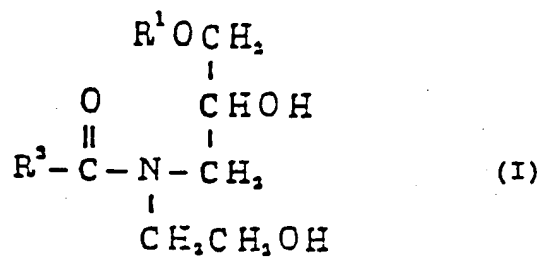
qui est ensuite, ou bien acylé avec R<sup>2</sup>-COCl pour former un intermédiaire de formule (III):



avec une hydrolyse sélective ultérieure des groupes ester, ou bien mis à réagir avec un ester méthylique de formule:



2. Utilisation d'un dérivé d'amide représenté par la formule générale (I):



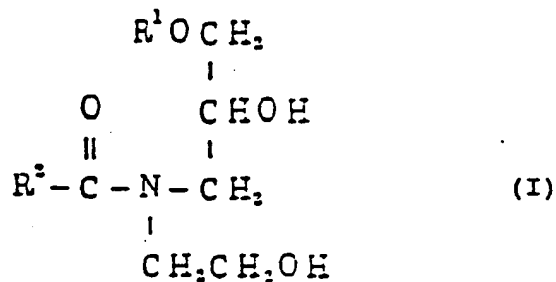
dans laquelle:

- R<sup>1</sup> représente un groupe hydrocarboné saturé ou insaturé, linéaire ou ramifié, ayant de 10 à 26 atomes de carbone; et

- R<sup>2</sup> représente un groupe hydrocarboné saturé ou insaturé, linéaire ou ramifié, ayant de 9 à 25 atomes de carbone,

pour la préparation d'un médicament à usage externe.

3. Utilisation d'un dérivé d'amide représenté par la formule générale (I):



dans laquelle:

- R<sup>1</sup> représente un groupe hydrocarboné saturé ou insaturé, linéaire ou ramifié, ayant de 10 à 26 atomes de carbone; et

- R<sup>2</sup> représente un groupe hydrocarboné saturé ou insaturé, linéaire ou ramifié, ayant de 9 à 25 atomes de carbone,

et d'un agent tensio-actif pour la préparation d'un médicament à usage externe.